

Water Security Summit 2005


Michigan DEQ Water Security Program



Kudos

- Michigan Section - American Water Works Association (AWWA) for their long term commitment to stewardship of the water environment
- The people of Michigan for supporting well planned emergency activities.



A photograph of a space shuttle in orbit above Earth. The shuttle is on the left, with its white thermal blankets and various instruments visible. The Earth's surface below is a mix of blue oceans and brown landmasses, with a prominent dark blue lake (Lake Michigan) visible. The horizon of the Earth is curved across the middle of the frame.

Bob Babcock
Security and Emergency Response
Coordinator



State of Michigan
Department of
Environmental Quality

Contact Info:
1-517-373-8566
babcockr@mi.gov



[Michigan.gov Home](#)

[DEQ Home](#) | [Online Services](#) | [Permits](#) | [Programs](#) | [Site Map](#) | [Contact DEQ](#)

Search [Advanced Search](#)

WATER

- > [Biosolids & Industrial Pretreatment](#)
- > [Drinking Water](#)
- > [Emergency Response for Releases to Water](#)
- > [Great Lakes](#)
- > [Groundwater Discharge](#)
- > [Groundwater Modeling](#)
- > [Inland Lakes & Streams](#)
- > [Mosquito Control Projects](#)
- > [Surface Water](#)
- > **Water and Wastewater Security**
- > [Water Management](#)
- > [Water Quality Monitoring](#)
- > [Wetlands Protection](#)

[\[Printer Friendly\]](#)

[\[Text Version\]](#)

Water and Wastewater Security

Due to terrorist attacks on September 11, 2001, and recent federal legislation and state authorizations, the Michigan Department of Environmental Quality (MDEQ), Water Bureau (WB), actively participates in numerous Infrastructure Security Program activities. The federal Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act) requires drinking water systems to comply with requirements by certain dates as a part of the nation's homeland security efforts. The WB plays a critical role in training and assisting the drinking water and wastewater systems in complying with the federal Infrastructure Security Program.



Here is an introductory powerpoint presentation ([PPT](#) 10MB or [PDF](#) 4MB) outlining the major challenges of Water and Wastewater Security.

Information

- [8 Requirements of Bioterrorism Act](#)
- [EPA Security Guidance for Drinking Water Facilities](#)
- [Easy-to-read Summary of the Bioterrorism Act of 2002](#) [PDF](#)
- [Homeland Security Presidential Directives \(HSPD\) Index](#)
- [Instructions on sending your VA/ERP to EPA](#) [PDF](#)
- [National Alert Status - Department of Homeland Security](#)
- [Threat Analysis Methodology System \(TAMS\) Index](#)

- > [State Departments](#)
- > [State Sponsored Sites](#)
- > [Statewide Online Services](#)

DEQ Quick Links

- [DEQ Forms](#)
- [DEQ Training & Workshops](#)



Department of Environmental Quality



Michigan.gov

An Official State of Michigan Web Site

[Michigan.gov Home](#)[DEQ Home](#) | [Online Services](#) | [Permits](#) | [Programs](#) | [Site Map](#) | [Contact DEQ](#)

Search

Advanced Search

WATER

[Biosolids & Industrial Pretreatment](#)[Drinking Water](#)[Emergency Response for Releases to Water](#)[Great Lakes](#)[Groundwater Discharge](#)[Groundwater Modeling](#)[Inland Lakes & Streams](#)[Mosquito Control Projects](#)[Surface Water](#)[Water and Wastewater Security](#)[Water Management](#)[Water Quality Monitoring](#)[Wetlands Protection](#)[\[Printer Friendly\]](#)[\[Text Version\]](#)

Emergency Response for Releases to Water

Introduction to the Part 5 Rules - Spillage of Oil and Polluting Materials.



The Water Bureau is responsible for implementing the Part 5 Rules - Spillage of Oil and Polluting Materials. The revised Part 5 Rules were made effective August 31, 2001. The Part 5 Rules deal with the storage and release of oil, salt, and polluting materials. Such issues as threshold management quantities, Pollution Incident Prevention Plans (PIPPs), secondary containment, threshold reporting quantities, spill reporting, surveillance of manufacturing processes, treatment systems, and storage areas are described. The entire Part 5 Rules can be downloaded from this web page under "Laws and Rules".

Here is an introductory powerpoint presentation ([PPT 6MB](#) or [PDF 2MB](#)) about the Part 5 rules.

Information

- [Water Emergency Response to Releases](#)
- [Water Bureau Part 5 Rules/PIPP Staff](#)
- [Part 5 Rules Operational Guidance Index](#)
- [Emergency Response Photo Gallery](#)
- [Part 5 Rules Information Package: summary of changes, facilities](#)

- [State Departments](#)
- [State Sponsored Sites](#)
- [Statewide Online Services](#)

DEQ Quick Links

- [DEQ Forms](#)
- [DEQ Training & Workshops](#)

Heroes

- Let's

Heroes

- Roll

Todd Beamer



“Let’s Roll!”

- Nobody knows the courage, importance and impact of the sacrifices made by Todd Beamer, Jeffery Glick, Thomas Burnett Jr., and others aboard United Airlines Flight 93, Sept 11th, 2001
- Apparently the terrorists planned to crash the plane into the U.S. Capitol or White House



Todd Beamer



Heroes

- We should know
and not forget our
heroes

Human Longevity

- An unsolicited testimony from an epidemiologist indicated the main reason for the dramatic increase in human lifespan over the last 100 years is due to the improvement in the treatment of drinking water and wastewater.



Drinking water program

- Our greatest strength is our greatest weakness

Hurricane Katrina



What is your community's scariest emergency?...new utility paradigm

- Malevolent acts...what are they?
 - Malevolent: 'wishing evil or harm to others; having or showing ill will'
 - What is in the hearts and minds of people?
- CBERN and cyber
 - CBERN: chemical, biological, explosive, radiological, nuclear
 - Cyber: computer / systems terrorism



Security = CIP 3

- Capital Improvement Plan
- Continuous Improvement Program
- Critical Infrastructure Protection

Questions

- Are you subject to new information? At what speed?...yes...186,000 miles per second
- How long will you have to have to upgrade your computer system's virus protection?...forever
- Are issues that are higher on the ladder of abstraction more important?...yes, eg, security

What's Going On?

- Grants:
 - \$ 399 K EPA: VA and ERP training: Phase I and II
 - \$ 138 K US DHS TTXs: tabletop exercises
 - \$760 K US DHS Detroit – St. Clair rivers real-time monitoring
- CIP: critical infrastructure protection committee
- Technology, web page
- MDCH/U of M School of Public Health/CDC
- Chlorine use reduction initiative
- MDEQ staff security training
- MIHAN: Michigan Health Alert Network



What's Going On? (cont'd)

- CIP: Critical Infrastructure Committee
- Seven subsectors
 - Water, Transportation, Agriculture/food, Energy, Cyber/computer, Special Events/banking, chemical/nuclear facilities

Meet monthly at MSP headquarters

Reports to Michigan Homeland Security Council which reports to the Michigan Homeland Protection Board

Charged with implementation of the CIP strategy in accordance with the Michigan Emergency Management Strategy

Grantsmanship

- Contract acquisition via DMB
 - Request for Proposals
 - Invitation to Bid
- Contract administration

Three grants

- \$ 399 K: US EPA : VA & ERP training
 - Camp Dresser & McKee (CDM) contractor
 - 2003 - 2005
- \$ 138 K: US DHS: TTXs
 - Camp Dresser & McKee (CDM) contractor
 - 2005
- \$ 760 K: US DHS: Detroit & St. Clair rivers real-time monitoring
 - 2005 - 2007

Technology

- Technology: generally inexpensive capital costs
- Internet: information segueing to the web
- Real time water quality monitoring a part of water treatment plant's SCADA system; more graphical vs individual numerics

US Dept of Health and Human Services (DHHS)

- Center for Disease Control: CDC
- University of Michigan, School of Public Health, Center for Public Health Preparedness
- Water borne and zoonotic (animal to human) disease exercises
- Milwaukee, WI cryptosporidium and Walkerton, ON E. coli 0157 episodes

Homeland Security Presidential Directive (HSPD) # 9

- “...This effort will include countermeasure research and development of new methods for detection, prevention technologies, agent characterization, and dose response relationships for high-consequence agents in the food and **the water supply**. (emphasis added) ...”

Federal Safe Drinking Water Act Bioterrorism Requirements

- Vulnerability Assessments (VA) and Emergency Response Plans (ERP)
- Required of public water systems with populations > 3,300



What is a Vulnerability Assessment?

- Vulnerability Assessments help water and wastewater systems evaluate susceptibility to potential threats and identify corrective actions that can reduce or mitigate the risk of serious consequences from adversarial actions.

What is an Emergency Response Plan (ERP)

- An Emergency Response Plan is a process which describes actions, procedures and equipment which can prevent or significantly lessen the impact of terrorists' attacks or other malevolent acts on the public health, safety, and supply of drinking water.



Mich Dept of Community Health – MiHAN

- Center for Disease Control (CDC)
- MiHAN: Michigan Health Alert Network
- Internet Web based health monitoring database
- Tracks local health issues: e.g., pharmaceutical/medicinal sales and hospital emergency rooms admissions

Liquid Chlorine Use Reduction Initiative

- Early planning taking place to implement a liquid chlorine use reduction initiative
- Objective to reduce potential for deadly gas episode at water and wastewater treatment plants

MDEQ staff security training

- Initiative to train MDEQ Water Bureau Staff on the water security program

Need to fold in water security program into routine facility inspections and plans and specifications reviews

VA/ERP Phase II training

- VA/ERP training for non-required public water systems
- 1,165 public water systems w/ less than 3,300 population served
- 30 locations
- 260 public water systems attended with 290 personnel attending

VA/ERP training grant

- US EPA
- \$ 399 K contract with CDM: Camp Dresser & McKee
- Vulnerability assessment (VA) and Emergency Response Plan (ERP)
- 2003 – 2005
- Phase I: 252 community water systems: population > 3,300

VA/ERP grant (cont'd)

- Phase I done: 16 locations
- 153 out of 252 community water systems attended VA/ERP training
- 452 personnel attended

VA's and ERP's: So What!?

- Collecting dust, or, improving the system
- Local initiative as well as the national program need to be effecting change in order to improve the utility
- CONTINUOUS CHANGE is the price of vigilance



TTX grant: Funding Background/History

- DHS \$138k
- Had to complete by 3/31/05
- Extension to 7/31/05
- Amendment for additional 10 TTXs



TTX grant: Concepts

- Hopes and Fears
- Bootstraps
- Hearts and Minds
- Relationships
- Partnerships
- Uniforms



TTX's/FTX's

- TTX's: Table top exercises
 - Put faces to names and develops local experience
- FTX's: Field exercises
 - Equipment mobilized and used
 - Usually involves private stakeholder
- Suggest annual exercise
 - 'use it' or 'lose it' concept – commitment to emerg. response integrity



TTXs : objectives

- Increase Awareness
- The objective of the exercise is to bring key public water and wastewater personnel together, along with key public safety (police and fire dept) officials, at key water and wastewater treatment plants to use and evaluate the facilities' existing emergency response plan/contingency plan for possible revisions.

TTX's : Objectives [continued]

- Policies and procedures would be reviewed and the facilities' personnel and public safety (police and fire) officials would gain experience in responding to exercise scenarios and would be more comfortable working together in the event of a real incident.

Public Water System local emergency planning process

- Public water and wastewater officials need to be a part of the community police, fire, and hospital emergency response activities associated with the local emergency planning.

TTX concept: Hopes and Fears

- Hope that community finds doing a tabletop exercise useful and that they will do a TTX annually
- Fear that community will find doing a TTX a waste of time

TTX concept: Bootstraps

- No one will pull your own bootstraps up for you
- You have to do it !!!!

TTX concept: Hearts and Minds

- There are more people in the world.
- What's in their hearts and minds?

TTX concept: Relationships

- It's important to establish strong useful relationships BEFORE the event
- You should have as many DIFFERENT ORGANIZATIONS around the table as are necessary to meet the need

TTX concept: Relationships

- Water and wastewater officials need to be an active participant in their local emergency planning efforts of the LEPC – local emergency planning committee
- When the incident occurs, the strength of your relationships will be tested
- Put face to name and telephone number BEFORE the incident



TTX concept: Partnerships

- It's important to have as many partners at the table who understand the importance of the public water system and are useful to assisting your community water system meet its mission

TTX concept: Uniforms

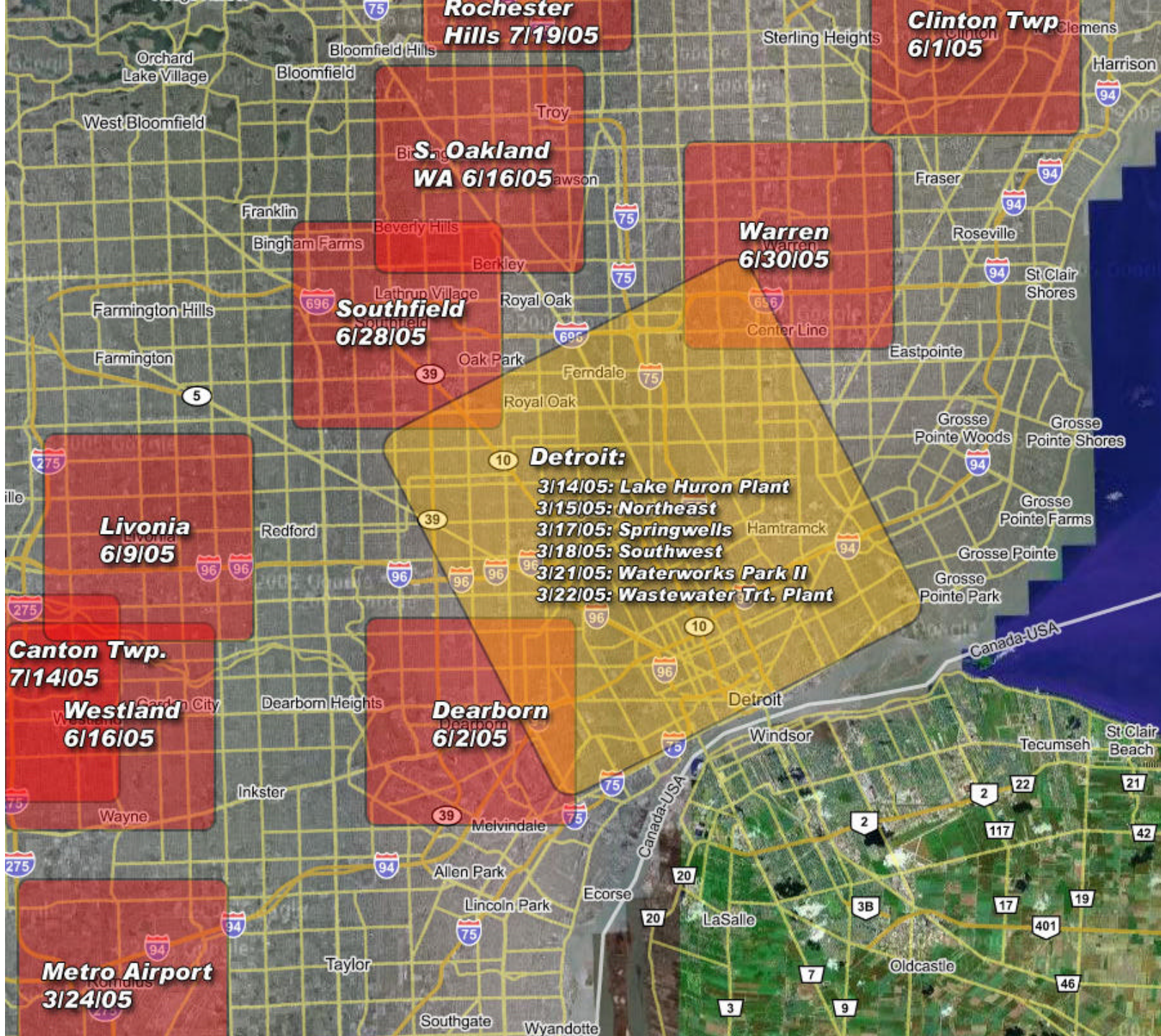
- First Responders, eg, Police and Fire Depts, will need to be used in the event of a terrorist act.
- Military, eg, the Michigan Army National Guard 51st Civil Support Team, are needed in the event of weapons of mass destruction (WMD) terrorist attack.

TTX's: data

- 30 TTXs conducted between 2/1/05 and 7/21/05
- Principally based on population
- 350 attendees responsible for providing clean drinking water to 4,953,404 of the 10,000,000 people in Michigan







Rochester Hills 7/19/05

Clinton Twp 6/1/05

St. Oakland WA 6/16/05

Warren 6/30/05

Southfield 6/28/05

Livonia 6/9/05

Detroit:

- 3/14/05: Lake Huron Plant
- 3/15/05: Northeast
- 3/17/05: Springwells
- 3/18/05: Southwest
- 3/21/05: Waterworks Park II
- 3/22/05: Wastewater Trt. Plant

Canton Twp. 7/14/05

Westland 6/16/05

Dearborn 6/2/05

Metro Airport 3/24/05

Lessons Learned

- ERPs: use to train EOC, staff, PD, FD
- 800 megahertz radios
- Rush to flush vs isolation/containment
- 51st CST
- 3 advisories – not just ONE
 - Boil Water
 - Do Not Drink – Public Educated ???
 - Do Not Use – Public Educated ???
- Canary / RTM
- Reverse 911



TTX: Lessons Learned: ERP - use it to train

- Use your Emergency Response Plan [ERP] to conduct training of your:
 - Community water system staff
 - Emergency Operations Center [EOC]
 - Police and fire departments first responders

TTX: Lessons Learned: 800 megahertz radios

- In the event of a cell telephone outage or other communications outage
- Allows for various government authorities to communicate in the event of an communications outage

Enter search term

Submit Advanced

MILITARY

Weapons of Mass Destruction Civil Support Teams



In a commencement address at the U.S. Naval Academy in May 1998, President Bill Clinton announced that the nation would do more to protect its citizens against the growing threat of chemical and biological terrorism. As part of this effort, he said, the Department of Defense would form 10 teams to support state and local authorities in the event of an incident involving weapons of mass destruction.

The WMD Civil Support Teams were established to deploy rapidly to assist a local incident commander in determining the nature and extent of an attack or incident; provide expert technical advice on WMD response operations; and help identify and support the arrival of follow-on state and federal military response assets. They are joint units and, as such, can consist of both Army National Guard and Air National Guard personnel, with some of these units commanded by Air National Guard lieutenant colonels.

The mission of Weapons of Mass Destruction Civil Support Teams (WMD-CST) is to support local and state authorities at domestic WMD/NBC incident sites by identifying agents and substances, assessing current and projected consequences, advising on response measures, and assisting with requests for additional military support.

The WMD civil support teams are able to deploy rapidly, assist local first-responders in determining the nature of an attack, provide medical and technical advice, and pave the way for the identification and arrival of follow-on state and federal military response assets. They provide initial advice on what the agent may be, assist first responders in that detection assessment process, and are the first military responders on the ground, so that if additional federal resources are called into the situation, they can serve as an advance party that can liaise with the Joint Task Force Civil Support.

The units provide critical protection to the force, from the pre-deployment phase of an operation at Home Station through redeployment. They ensure that strategic national interests are protected against any enemy; foreign or domestic, attempting to employ chemical, biological, or radiological weapons - regardless the level of WMD/NBC threat. They are a key element of the Department of Defense's overall program to provide support to civil authorities in the event of an incident involving weapons of mass destruction in the United States.

They maintain the capability to mitigate the consequences of any WMD/NBC event, whether natural or man-made. They are experts in WMD effects and NBC defense operations.

These National Guard teams provide DoD's unique expertise and capabilities to assist state governors in preparing for and responding to chemical, biological, radiological or nuclear (CBRN) incidents as part of a state's emergency response structure. Each team consists of 22 highly skilled, full-time National Guard members who are federally resourced, trained and exercised, and employs federally approved CBRN response doctrine.

These units derive their origins in guidance from the US Congress which stated the need to "establish and equip small organizations in each of the 44 states not receiving initial RAB (Rapid Assessment and Initial Detection) element in 1999 to provide limited chemical/biological response capability."

Units

- 1st WMD CST [MA NG] - Natick
- 2nd WMD CST [NY NG] - Scotia
- 3rd WMD CST [PA NG] - Annville
- [4th WMD CST](#) [GA DOD DOJ]
- 5th WMD CST [IL NG] - Bartonville
- [6th WMD CST](#) [TX NG]
- [7th WMD CST](#) [MO NG]
- [8th WMD CST](#) [CO NG]
- [9th WMD CST](#) [CA NG]
- 10th WMD CST [WA NG] - Tacoma
- [11th WMD CST](#) [ME NG]
- [13th WMD CST](#) [RI NG]
- 14th WMD CST [CT NG]
- 15th WMD CST [VT NG]
- 21st WMD CST [NJ NG]
- 22nd WMD CST [PR NG] - San Juan
- 23rd WMD CST [VI NG] - St Croix
- 31st WMD CST [DE NG]
- 32nd WMD CST [MD NG]
- 33rd WMD CST [DC NG]
- 34th WMD CST [VA NG] - Blackstone
- 35th WMD CST [WV NG] - St. Albans
- 41st WMD CST [KY NG] - Louisville
- [42nd WMD CST](#) [NC NG]
- 43rd WMD CST [SC NG] - Eastover
- 44th WMD CST [FL NG] - Starke
- 45th WMD CST [TN NG] - Smyrna
- 46th WMD CST [AL NG] - Montgomery
- 47th WMD CST [MS NG]
- [51st WMD CST](#) [MI NG] - Augusta
- [52nd WMD CST](#) [OH NG]
- 53rd WMD CST [IN NG]
- [54th WMD CST](#) [WI NG]
- 55th WMD CST [MN NG] - St Paul
- 61st WMD CST [AR NG] - Little Rock
- 62nd WMD CST [LA NG] - Carville
- [63rd WMD CST](#) [OK NG]
- 64th WMD CST [NM NG] - Santa Fe

Search globalsecurity.org for "Weapons of Mass Destruction Civil Support Teams"

TTX: Lessons Learned: 51st Civil Support Team (CST)

- Michigan Army National Guard
- Augusta, MI
- Fort Custer
- **ALL ERP's should have the 51st CST listed in event of terrorist attack**

TTX: Lessons Learned: Michigan National Guard 51st WMD Civil Support Team

- Michigan National Guard
 - 51st Weapons of Mass Destruction (WMD) Civil Support Team
 - 2750 27th Street, Augusta, MI 49012 – 9205
 - Lt. Col. Clark D. Hinga, Commander
 - Cell: 269 420 3861 // direct line: 269 731 6531
fax: 269 731 6449
 - Unit: 269 731 6522
 - E mail: clark.hinga@mi.ngb.army.mil

Example Boil Water Notice: public most familiar w/ this

WARNING

BOIL YOUR WATER BEFORE USING

[The Holly County Water System] water is contaminated with [fecal coliform/E. coli]

[Fecal coliform or E. coli] bacteria were found in the water supply on [November 5th]. These bacteria can make you sick and are of particular concern for people with weakened immune systems.

What are Fecal Coliforms and E. Coli?

Fecal coliform and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes.

What should I do?

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST OR USE BOTTLED WATER. Bring all water to a boil, let it boil for [three minutes], and let it cool before using. Boiled or bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and preparing food until further notice. Boiling kills bacteria and other organisms in the water.



Example Do Not Drink Notice: public educated on what this means???

WARNING

DO NOT DRINK THE WATER

[Paraquat] found in the [City of Rolling Brook] water supply on [October 10th]
**Bottled water can be obtained at [Islington Station High School and
Penn Road High School 24 hours per day].**

What is Paraquat?

Paraquat is a chemical usually used to kill weeds. This chemical can make you sick and may result in death.

What should I do?

DO NOT DRINK THE WATER. Do ***not*** use the water for drinking, making ice, brushing teeth, washing dishes, or preparing food until further notice.

What are the symptoms of illnesses associated with paraquat poisoning?

Symptoms associated with exposure to paraquat include abdominal pain, nausea, vomiting, hematemesis, diarrhea, convulsions, lethargy to coma, and death.



Example Do Not Use Notice: public educated on what this means ???

WARNING

DO NOT USE THE WATER

[Contamination Event] of the [Masterson Water System] water supply on [November 14th]

Bottled water can be obtained at [Fairmont High School and North High School 24 hours per day].

Local authorities have found evidence of contamination of the Masterson Water System.

What should I do?

DO NOT USE THE WATER. You should ***not*** use the water for drinking, making ice, brushing teeth, washing dishes, washing clothes, bathing/showering, food preparation, or toilet flushing. Bottled water should be used for all of the above necessities until further notice.

What happened? What is being done?

The water distribution system was contaminated with an **unknown contaminant**. We are working with law enforcement and the public health department to investigate/resolve this issue. We are conducting tests in attempts to identify the contaminant and verify the extent of the contamination. We have implemented additional security procedures to protect the system against further contamination. Additional information will be provided 24 hours/day on Channel 57- the local government television channel.

Lessons Learned: Reverse 911

- Internet service using geographic information system (GIS)
- Makes telephone calls up to 900 calls per minute
- Numerous Internet based providers available

2005 Water Security Congress: Oklahoma City



Oklahoma City National Memorial
Site of Murrah Federal Building

- Concepts at the conference
 - Canaries
 - Technology
 - Relationships
 - Evolving
 - Real-Time Monitoring
 - Department of Homeland Security



Canary

- In drinking water distribution systems, often the 'canary', a la the mining toxics monitoring organism, is people
- More real time continuous monitoring of physical, chemical and biological parameters are being researched for use in the drinking water systems



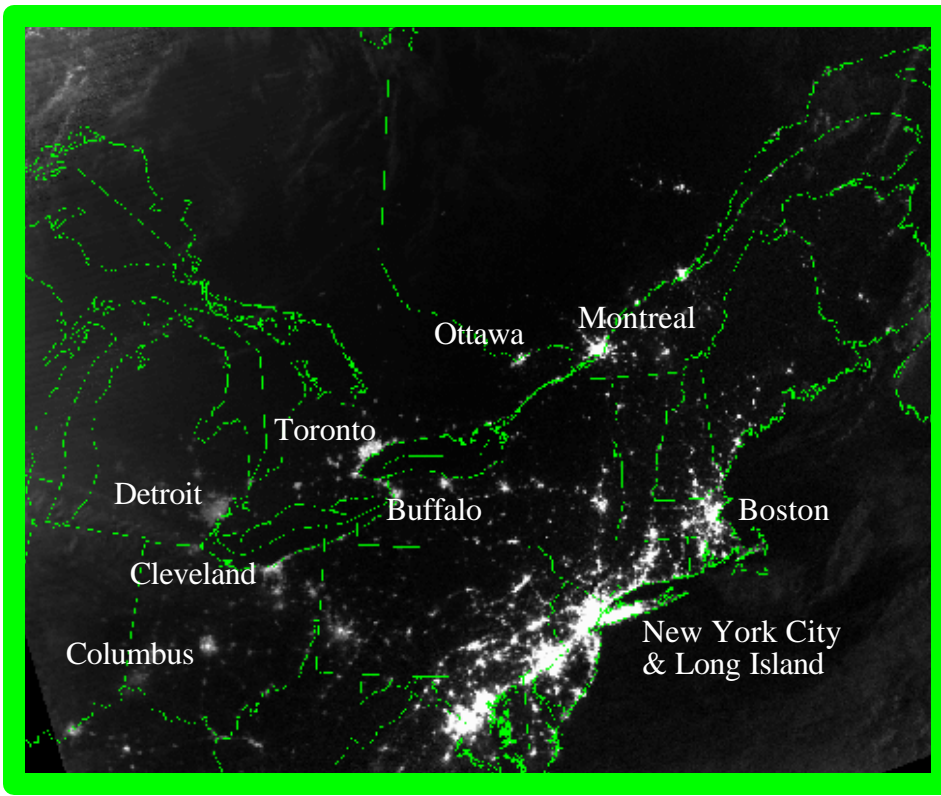
Evolving

- The country's homeland security efforts are constantly changing due to new information, needs, and funding and authorizations
- The US Department of Homeland Security includes more than 20 federal agencies w/ more than 170,000 employees

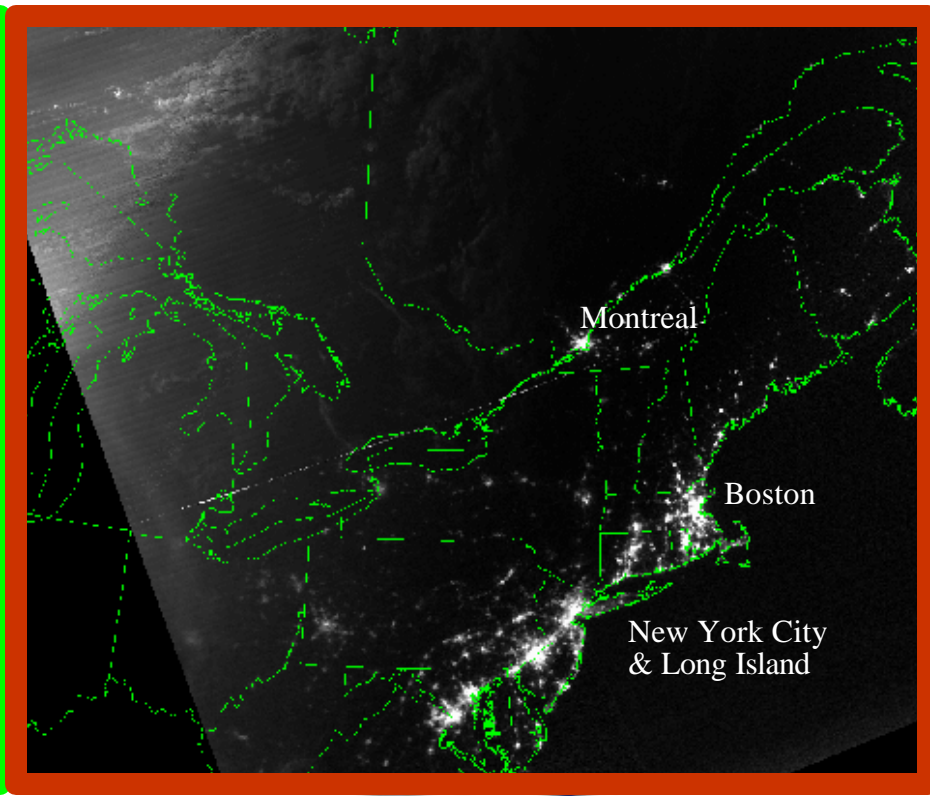


BLACKOUT 2003 – August 14 ~ 4:15 PM EDT

August 13 – 8:29 PM
~ 20 hours BEFORE

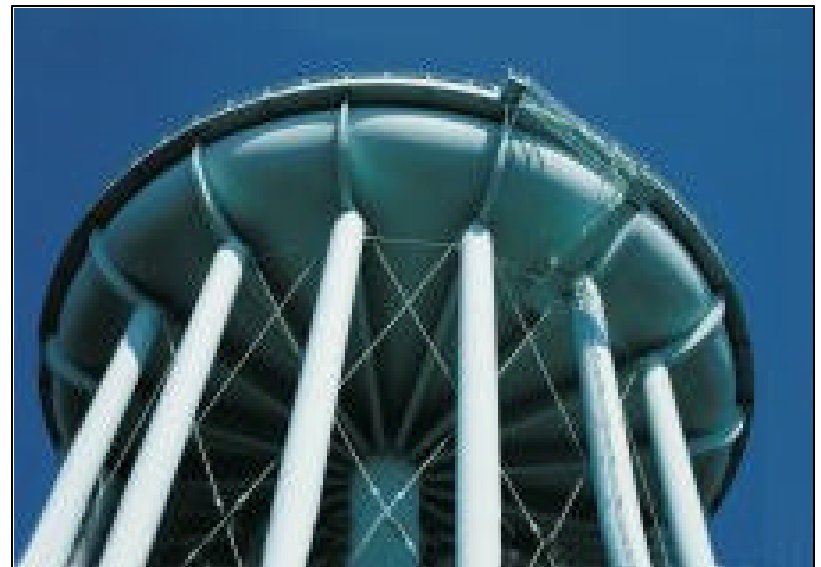


August 14 – 8:14 PM
~ 4 hours AFTER



Water and Wastewater Systems

- Detroit operates the largest water and wastewater utility in Michigan and the 3rd largest in the U.S. It serves 4.3 million people in 126 communities in nine counties.
- Three of five water treatment plants have backup generators, and all have 2 or 3 feeds from separate substations. This exceeds requirements for water treatment plants. Six booster stations also have backup generators.
- Several communities had low or no pressure; however, many communities were able to maintain reduced pressure due to location and storage capacity.
- A “Boil Water Advisory” issued at 7:15 pm 8/14, and rescinded 3:00 pm 8/18. The number of people affected had serious public health implications.
- Calls for water conservation.
- Wastewater system have limits to holding capacity.
- Water for fire protection a concern.



Bath Explosion

On May 18, 1927, Andrew Kehoe detonated 500 pound of dynamite at the Bath Community Consolidated Schools in mid-Michigan, killing 37 children and 7 adults. Fifty others were injured. This was the worst act of terrorism in the United States until the Oklahoma City bombing.



Oklahoma City Bombing



On April 19TH, 1995, Timothy McVeigh parked a rented Ryder truck with explosives in front of the Alfred P. Murrah Federal Building complex and, at 9:02am, a massive explosion occurred which sheared the entire north side of the building, killing 168 people.



Local actions are the most important

- During the power outage of August 2003, it wasn't the state or federal government that minimized the negative impact of the power outage...

It was the local utility and public safety officials who did keep the services to the community going as best they could.

